Chapter 2

Description of Proposed Project

Project Location

The proposed project is located at the HAAF, a former military installation located adjacent to San Pablo Bay in the City of Novato, Marin County, California (Figure 2-1). The surrounding area is a combination of residential and commercial use with large, undeveloped open space, agriculture, and wetlands.

The HAAF main airfield parcel occupies approximately 644 acres, which includes the inboard area (the former airfield and eastern perimeter levee) and approximately 10 acres of coastal salt marsh east of the levee (Figure 2-2). An additional 78 acres of coastal salt marsh in the project area is owned by the SLC. The ROD/RAP addresses sites in both the inboard and coastal salt marsh areas, including coastal salt marsh lands owned by the SLC, and a site on the adjacent Navy ball fields parcel (Spoils Pile N).

Project Objectives and Goals

The objective of the HAAF Main Airfield Parcel ROD/RAP is to remove and/or cover contamination in the inboard area, rendering it suitable for open-space wetland restoration. For the coastal salt marsh, the objective is to remove contaminated soils to the maximum extent practical to protect public health and to maintain its wetland function. The ROD/RAP has been developed and would be implemented in support of the HWRP and its goal to create a diverse array of wetland and wildlife habitats at HAAF that benefits a number of endangered species as well as other migratory and resident species.

One of the key objectives of the HWRP is to recognize existing site opportunities and constraints, including the runway and remediation of contaminated areas, as integral components of design. Pursuant to this objective, the ROD/RAP proposes specific remedial action strategies at each site of known contamination in the main airfield and the coastal salt marsh that are fundamentally related to the establishment and long-term development of the wetland.

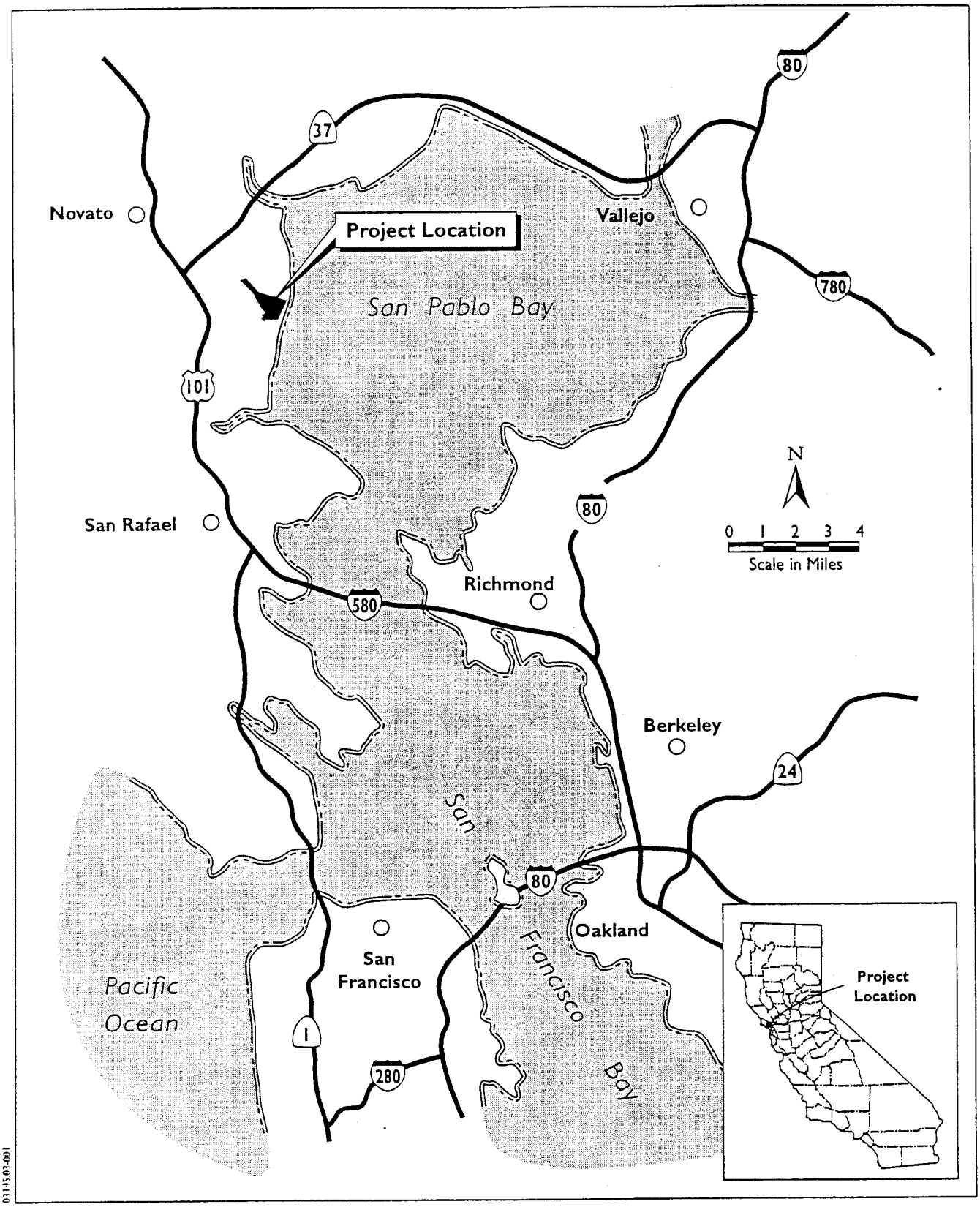

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Figure 2-1
Regional Location of the Hamilton Army Airfield Project

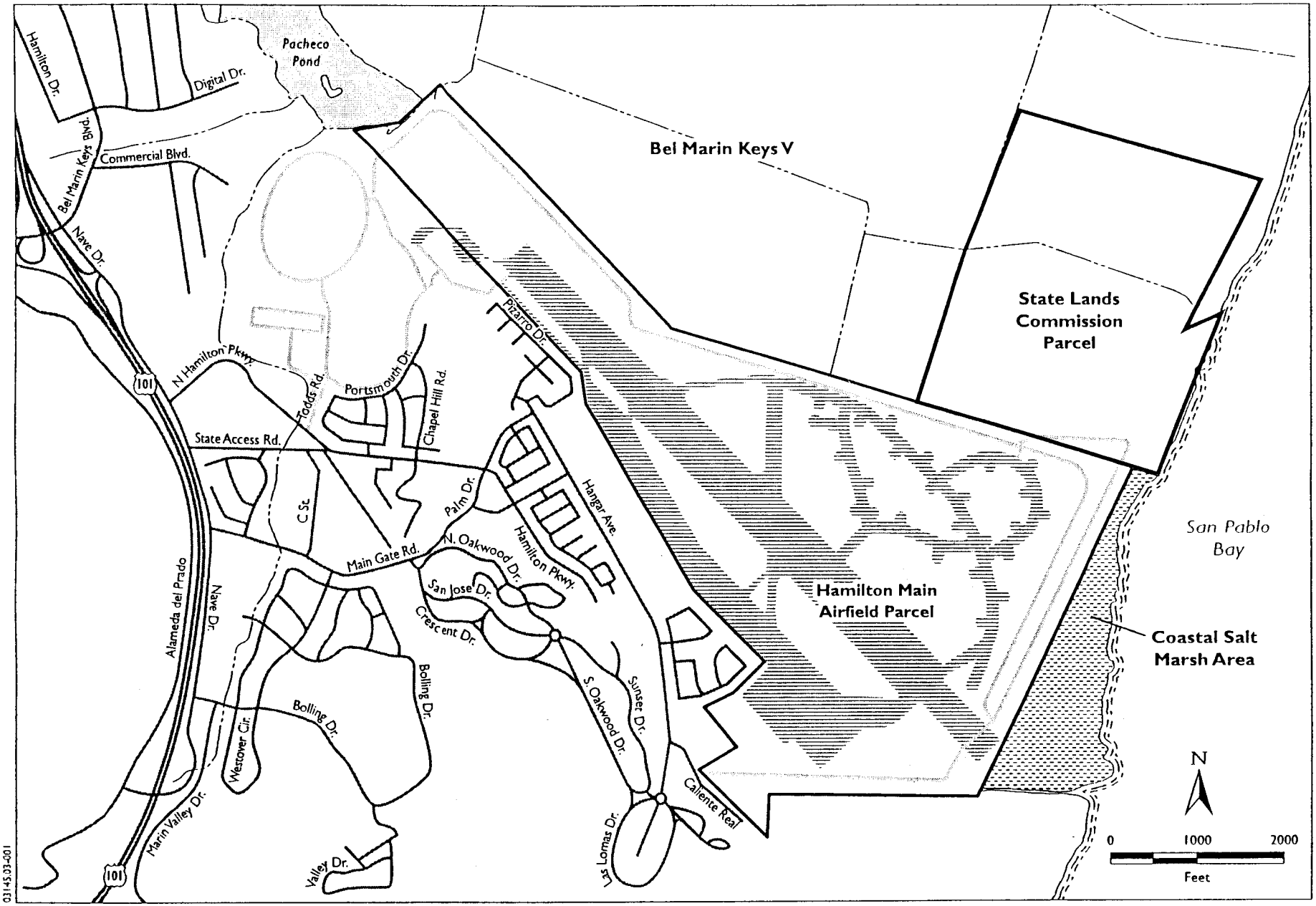

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Figure 2-2
Hamilton Main Airfield Parcel and Coastal Salt Marsh

The ROD/RAP defines target cleanup levels for contaminants that are protective of potential wetland receptors based on contaminant type, risk to human or ecological health, and the potential exposure pathways. Remedial actions are designed to ensure that target levels for all contaminants are achieved following remediation and during construction, establishment, and long-term development of the wetland.

The ROD/RAP has been developed with the ultimate view toward wetland restoration on the site pursuant to the HWRP and also directly or indirectly supports other objectives of the HWRP. Those objectives include

- to design and engineer a restoration project that stresses simplicity and has little need for active management;
- to demonstrate beneficial reuse of dredged material, if feasible;
- to ensure no net loss of wetland habitat functions presently provided at the HAAF site;
- to create and maintain wetland habitats that sustain viable wildlife populations, particularly for Bay Area special-status species;
- to include buffer areas along the upland perimeter of the project area, particularly adjacent to residential areas, so that wildlife will not be impacted by adjacent land uses—perimeter buffer areas should also function for upland refuge, foraging, and corridors for some species;
- to be compatible with adjacent land uses and wildlife habitats; and
- to provide for public access that is compatible with protection of resource values and regional and local public access policies.

Proposed HAAF Main Airfield Parcel ROD/RAP

Introduction

The proposed HAAF Main Airfield Parcel ROD/RAP documents the selected environmental response actions to be taken to address potential risks associated with residual contaminants on the main airfield parcel and the adjacent coastal salt marsh, and restoration of a wetland at HAAF. The ROD/RAP summarizes the following:

1. Lists those sites that have been investigated during the remedial investigation and those that require further investigation.
2. Establishes target cleanup levels (action goals) for all contaminants on the property based on an assessment of the human and ecological risk for each contaminant during construction and maturation of the wetland.
3. Identifies the goals (Remedial Action Objectives [RAOs]) that each remedial action is intended to achieve in terms of protecting human health and the

environment by removing or reducing residual contaminants to their respective action goals or eliminating exposure to contaminants.

4. Describes the selected response actions (remedial strategies) for each site in order to achieve the RAOs.

The ROD/RAP has been developed by the United States Department of the Army, RWQCB, and DTSC.

The Army is responsible for environmental remediation of the main airfield parcel at HAAF because the Department of Army was the owner of the property at the time of closure under BRAC. The term "environmental actions" in the ROD/RAP relates to two types of actions:

- response actions by the Army BRAC program, and
- environmental assurance actions by the Army Civil Works Program as part of the HWRP.

The Army BRAC program would perform environmental response actions to benefit the future land use plans for wetland restoration. The Army Civil Works Program, through the HWRP, would take actions to address the potential risks posed by dichlorodiphenyltrichloroethane (DDT) throughout the inboard area, and polynuclear aromatic hydrocarbons (PAHs) in soils adjacent to the runway.

The State (DTSC and the RWQCB) is regulating these environmental actions as environmental response actions in accordance with the provisions of California Health and Safety Code. The RWQCB, with DTSC support, would be the lead state agency for oversight of the implementation of the ROD/RAP. The RWQCB, as authorized by the Porter Cologne Water Quality Control Act, would adopt site cleanup requirements (SCRs) that would ensure implementation of the final approved ROD/RAP. Through the SCRs, the State would ensure that environmental assurance actions are taken.

Previous Investigations and Nature of Contamination on the Site

The ROD/RAP relies on a number of previous investigations and reports prepared for the main airfield parcel and coastal salt marsh areas between 1985 and 2002, including the Human Health and Ecological Risk Assessment (U.S. Army Corps of Engineers 2001), Remedial Design Investigation Final Data Report (FW 2000), Comprehensive Remedial Investigation (IT 1999a), and several interim removal action and sampling reports.

A focused feasibility study was prepared by the Army in 2001for the inboard area (CH2M Hill 2001) and in 2003 for the coastal salt marsh area (CH2M Hill 2003), referred to collectively as the focused feasibility study (FFS). The FFS evaluated sites that require further action and developed, evaluated, and

recommended alternatives for these sites to protect human health and the environment in the future wetland restoration.

The FFS considered remediation strategies consistent with the planned use of the site for wetland restoration. Specific aspects of the HWRP, such as proposed habitat type, channel excavation, and the potential for channel erosion (scour), were also considered in identifying, evaluating, and selecting remedial alternatives for the contamination sites. The ROD/RAP was prepared in conjunction with the FFSs for the inboard and coastal salt marsh areas to document the preferred remedies for each site. Army BRAC sites were not evaluated further in the ROD/RAP where it was previously determined in the FFS that no action was required or where no contaminants of concern were identified.

In 2001, the U.S. Army Corps of Engineers prepared an Archive Search Report (ASR) to document subsequent investigations to identify contamination issues that were not identified through previous investigations (U.S. Army Corps of Engineers 2001). A memorandum of record was prepared in 2003 to provide supplemental information to the ASR document (U.S. Army BRAC Office 2003). Through interviews with individuals and a review of archival materials, the ASR identified 19 sites of possible contamination. Many of the sites identified in the ASR were determined to be sites already known to the Army and previously investigated by the Army BRAC environmental restoration program. Further investigation is required for four of the sites identified in the ASR. These sites are included in the scope of the ROD/RAP.

The main airfield parcel was used for a variety of military functions. These functions were supported by underground storage tanks (USTs), aboveground storage tanks (ASTs), transformers and transformer pads, storm drain and sanitary sewer systems, the former sewage treatment plant (FSTP) (including sludge drying beds), fuel lines, revetment areas, and the perimeter drainage ditch (PDD), which collected runoff from the Base, as well as from some surrounding agricultural lands.

Portions of the coastal salt marsh were used to support Department of Defense operations on the main airfield. Activities within the coastal salt marsh included emergency rescue operations in San Pablo Bay and disposal of construction debris. Transformers and transformer pads, a winch at the boat dock, and a burn pit at the east levee construction debris disposal area are within the coastal salt marsh area. Additional features of the coastal salt marsh include the outfall drainage ditch (ODD), which receives stormwater runoff and drainage from the main airfield, and the FSTP outfall, which received main airfield sanitary and industrial wastes from the FSTP.

Based on historical investigations and removal actions to date, the types of contaminants detected at various sites within the HAAF main airfield parcel and adjacent coastal salt marsh include

- total petroleum hydrocarbons (TPHs), TPH-diesel, TPH-gasoline, jet fuel, or TPH-motor oil;
- metals;
- dioxins;
- volatile organic compounds (VOCs) such as benzene, ethylbenzene, toluene, and xylenes;
- semivolatile organic compounds including PAHs;
- polychlorinated biphenyls (PCBs); and
- pesticides/herbicides, including DDT.

Sites Considered in the ROD/RAP

Sites and issues evaluated in the ROD/RAP are summarized below. Inboard sites are shown on Figure 2-3, coastal salt marsh sites area shown on Figure 2-4, and DDT and PAH areas are shown on Figure 2-5. Contaminants of concern at each site are presented in Tables 2-1 and 2-2. A detailed account of these sites, including historical uses, previous investigations, identified contaminants, and prior remedial actions, is provided in the ROD/RAP. As described previously, sites evaluated in the ROD/RAP are divided between those where actions are to be implemented by the BRAC program and actions are to be implemented by the Army Civil Works program as part of the HWRP. The ROD/RAP also addresses several issues that would be addressed by the BRAC program. These issues are referred to as "other BRAC environmental considerations."

As noted in Chapter 1, the Navy ball fields parcel is under Navy ownership and will be subject to a separate transfer process. With the exception of Spoils Pile N, any residual contamination issues on this parcel would be addressed by the Navy.

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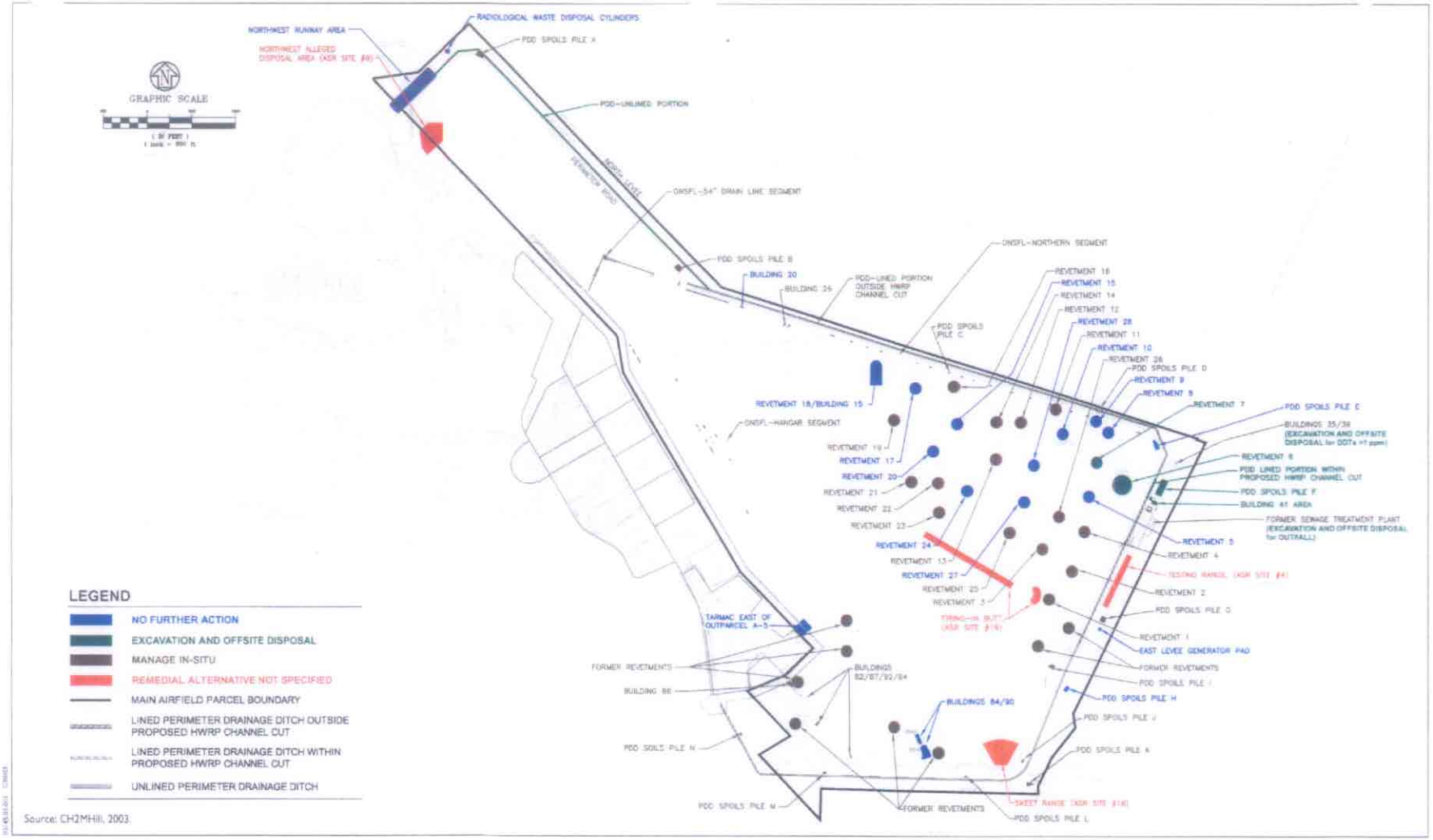

Source: CH2MHill, 2003.

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Figure 2-3
Inboard Area Site Locations

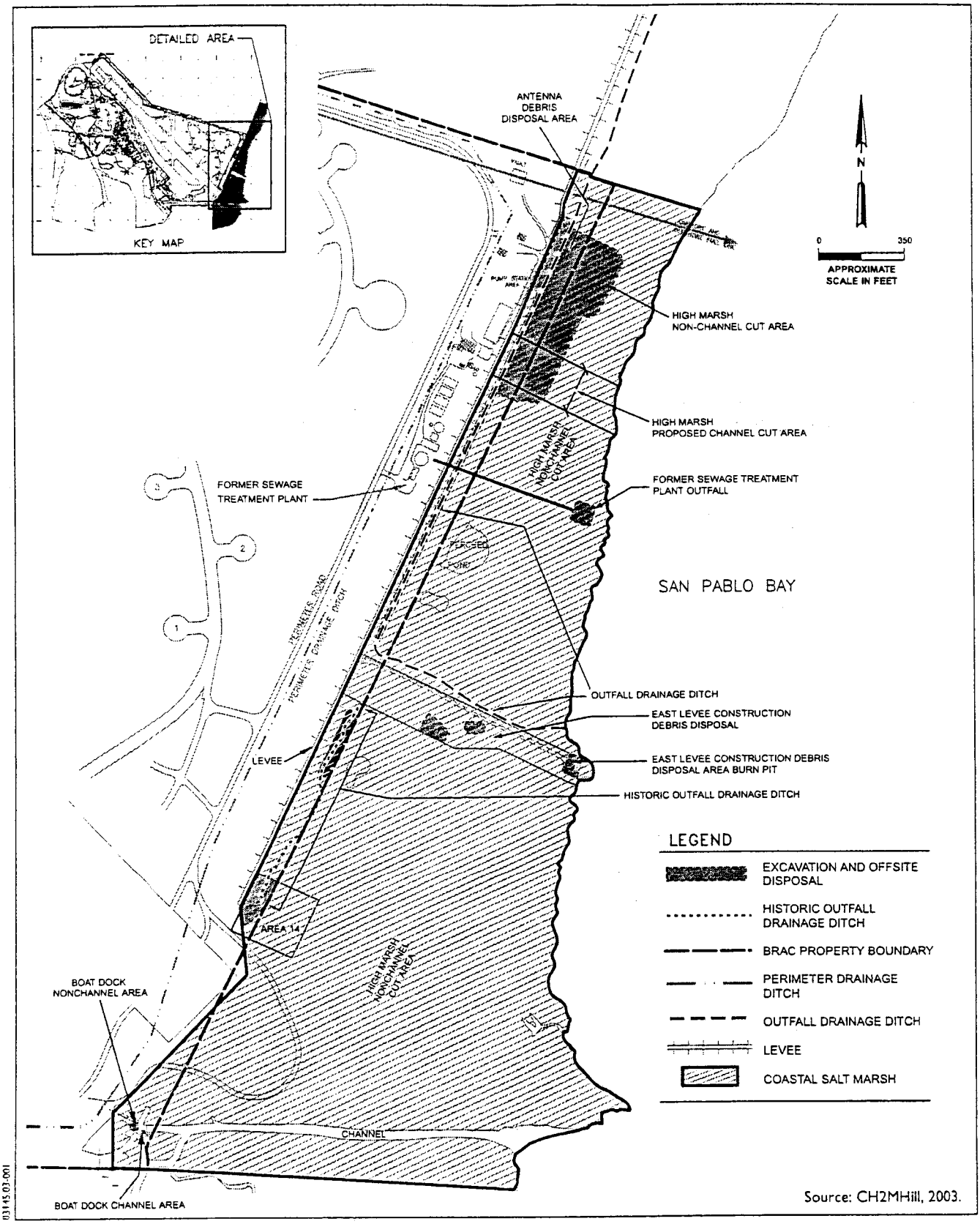

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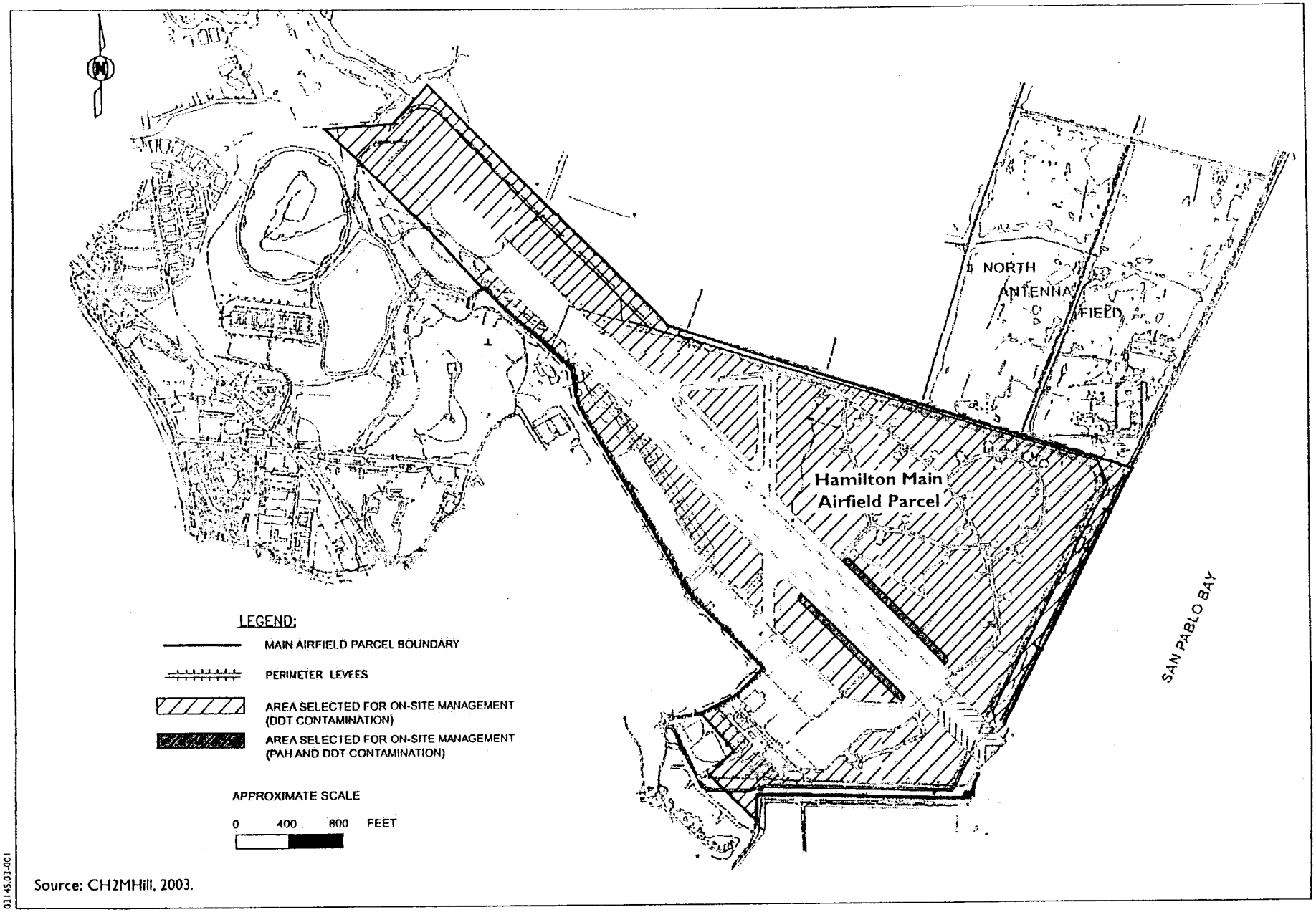
Figure 2-4
Proposed Remediation Areas – Coastal Salt Marsh Sites



Source: CH2MHill, 2003.

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Figure 2-5
Proposed Remedial Area for DDTs and PAHs

Table 2-1. Summary of Remedial Strategies and Contaminants of Concern for Inboard Sites

Site	Contaminants and Inboard Action Goals (ppm)																					
	TPH – Diesel - 144	TPH – Gasoline - 12	TPH – JP-4 - 12	TPH – Motor Oil - 144	DDT – 0.03	DDT 1.0	PAH – 4.022	Arsenic – 16.7	Barium - 190	Beryllium – 1.03	Boron – 36.9	Cadmium – 1.2	Chromium - 112	Cobalt – 27.6	Copper – 68.1	Lead – 46.7	Manganese - 943	Mercury – 0.43	Nickel - 114	Silver – 1.0	Vanadium - 118	Zinc - 158
No Further Action																						
Revetment 18/Bldg. 15																						
Building 20																						
Building 84/90 Area																						
PDD Spoils Pile E																						
PDD Spoils Pile H																						
East Levee Generator Pad																						
NW Runway Area										X	X											
Tarmac East of Outparcel A-5																						
Radiological Waste Disposal Cylinders																						
Revetment 5																						
Revetment 8																						
Revetment 9																						
Revetment 10																						
Revetment 15												X										
Revetment 17																						
Revetment 20												X										
Revetment 24																						
Revetment 27																						
Revetment 28																						

Site	Contaminants and Inboard Action Goals (ppm)																					
	TPH – Diesel - 144	TPH – Gasoline - 12	TPH – JP-4 - 12	TPH – Motor Oil - 144	DDT – 0.03	DDT 1.0	PAH – 4.022	Arsenic – 16.7	Barium - 190	Beryllium – 1.03	Boron – 36.9	Cadmium – 1.2	Chromium - 112	Cobalt – 27.6	Copper – 68.1	Lead – 46.7	Manganese - 943	Mercury – 0.43	Nickel - 114	Silver – 1.0	Vanadium - 118	Zinc - 158
Excavation and Off-site Disposal																						
Building 35/39 Area					X	X																
Building 41 Area	X				X																	
Perimeter Drainage Ditch (PDD) unlined						X	X			X												
PDD lined (proposed wetland channel)							X			X												
PDD Spoils Pile F					X		X	X		X				X		X	X		X			X
Revetment 6		X																				
Revetment 7							X					X				X						
In-Situ Management*																						
Former Sewage Treatment Plant					X																	
Building 26	X																					
Building 35/39 Area					X																	
Building 82/87/92/ 94 Area									X	X												
Building 86							X			X		X	X									
PDD lined (outside wetland channel)							X			X												
PDD Spoils Pile A					X					X												X
PDD Spoils Pile B												X			X			X		X		X
PDD Spoils Pile C					X																	
PDD Spoils Pile D					X																	
PDD Spoils Pile G					X																	
PDD Spoils Pile I					X					X												
PDD Spoils Pile J					X																	
PDD Spoils Pile K					X																	
PDD Spoils Pile L									X					X		X						X
PDD Spoils Pile M					X																	
PDD Spoils Pile N					X											X						
Onshore Fuel Line (ONSFL)		X																				

Site	Contaminants and Inboard Action Goals (ppm)																					
	TPH – Diesel - 144	TPH – Gasoline - 12	TPH – JP-4 - 12	TPH – Motor Oil - 144	DDT – 0.03	DDT 1.0	PAH – 4.022	Arsenic – 16.7	Barium - 190	Beryllium – 1.03	Boron – 36.9	Cadmium – 1.2	Chromium - 112	Cobalt - 27.6	Copper – 68.1	Lead – 46.7	Manganese - 943	Mercury – 0.43	Nickel - 114	Silver – 1.0	Vanadium - 118	Zinc - 158
ONSFL – Hangar Segment		X	X				X															
ONSFL – Northern Segment	X	X		X																		
Revetment 1							X		X			X				X						
Revetment 2												X				X						
Revetment 3									X						X		X					
Revetment 4												X				X						
Revetment 11															X							
Revetment 12															X							
Revetment 13							X					X				X						
Revetment 14	X																					
Revetment 16									X													
Revetment 19	X	X					X		X			X			X	X						
Revetment 21	X	X													X						X	
Revetment 22	X	X																				
Revetment 23															X							
Revetment 25	X								X													
Revetment 26	X	X							X		X						X					
On-site Management**																						
Inboard Area-wide DDTs; PAHs in soils adjacent to runway					X		X															
Lead-Based Paint																X						
Remedial Approach to be Determined***																						
Testing Range (ASR Site #4)																						
Alleged Hazardous, Toxic, and Radiological Waste Disposal Site (ASR Site #8)																						
Skeet Range (ASR Site #18)																						

Site	Contaminants and Inboard Action Goals (ppm)																				
	TPH – Diesel - 144	TPH – Gasoline - 12	TPH – JP-4 - 12	TPH – Motor Oil - 144	DDT – 0.03	DDT 1.0	PAH – 4.022	Arsenic – 16.7	Barium - 190	Beryllium – 1.03	Boron – 36.9	Cadmium – 1.2	Chromium - 112	Cobalt – 27.6	Copper – 68.1	Lead – 46.7	Manganese - 943	Mercury – 0.43	Nickel - 114	Silver – 1.0	Vanadium - 118	Zinc - 158
Firing-In-Butt (ASR Site #19)																					
GSA & BRAC Soil Stockpiles																					

*With monitoring and maintenance for Army BRAC Sites.

**With monitoring and maintenance for Army Civil Works Program.

*** If cleanup is determined to be necessary based on further investigations, cleanup would be conducted in accordance with the goals and objectives of the ROD/RAP. For purposes of analysis in this SEIR it is assumed that all ASR sites and approximately 10 percent of the GSA/BRAC soil stockpiles would be excavated and disposed of off site.

Table 2-2. Summary of Remedial Strategies and Contaminants of Concern for Coastal Salt Marsh Sites

Site	Contaminants and Coastal Salt Marsh Action Goals (ppm)																											
	Diesel Range Hydrocarbons	Endrin aldehyde – 0.0064	Heptachlor – 0.0088	Heptachlor epoxide – 0.0088	Total Dioxin Equivalents – 0.000021	BHC – 0.0048	DDT – 0.03	DDT 1.0	Dichlorprop – 0.14	MCPA – 7.9	MCPP – 3.0	Methoxychlor – 0.09	Motor Oil	PAH – 4.022	PCB – 0.09	Pentachlorophenol – 0.017	Phenol – 0.13	Chlordanes – 0.00479	Barium - 188	Beryllium – 1.68	Cadmium – 1.8	Cobalt – 26.7	Copper – 88.7	Lead – 46.7	Manganese - 1260	Mercury – 0.58	Nickel - 132	Silver – 1.0	Zinc - 169
Excavation and Off-site Disposal																												
Antenna Debris Disposal Area	X	X	X	X		X	X			X	X		X		X			X	X	X	X	X	X	X		X	X	X
East Levee Construction Debris Disposal Area	X				X		X								X									X				X
High Marsh Area																												
• Non-channel Cut Area		X					X								X			X		X		X	X	X	X		X	X	X
• Proposed Channel Cut		X					X						X					X		X	X	X		X			X		
Historic Outfall Drainage Ditch									X												X	X		X	X		X		X
Outfall Drainage Ditch	X	X					X						X		X	X	X	X		X	X	X		X	X		X	X	X
Boat Dock																													
• Non-channel Area				X		X	X					X		X				X						X					X
• Channel Area																			X				X	X					X
Area 14							X						X	X								X							
Former Sewage Treatment Plant Outfall and Pipe							X											X					X	X		X		X	X

Army BRAC Sites

Former Sewage Treatment Plant (FSTP)

The FSTP was located at the eastern edge of the inboard area, close to Perimeter Road and the PDD, and immediately southwest of the pump station area. The FSTP consisted of several buildings, a digester, and four unlined sludge-drying beds. This site also includes storm drains associated with the FSTP.

Building 20

Building 20, on the northern Perimeter Road, was used to produce electricity for runway lighting, radar, or other activities. One transformer pad is adjacent to the east wall, and one diesel UST was buried on the southwest side of the building. The transformers have been removed (IT 1999a).

Building 26

Building 26 is located along the northern Perimeter Road, approximately 500 feet southeast of Building 20. A transformer pad is located on the west side of the building; the transformers have been removed (IT 1999). One diesel UST was formerly located on the south side of the transformer pad, and a former AST was located inside the building. The UST excavation was backfilled.

Building 35/39 Area

The Building 35/39 Area is located near the northeast corner of the inboard area. Both buildings contain high-capacity pumps for the removal of water from the main airfield parcel. Three active transformers are located midway between the two buildings, and outfall pipes are located at each building to discharge water from the pumps through the levee into the ODD (IT 1999a).

Building 41 Area

Building 41 was a pump station in the southern portion of the pump station area. Two 1,100-gallon diesel USTs formerly located on the northwestern side of Building 41 supplied fuel for the pumps at the building. Structures in and around Building 41 have been removed. Features at the site included four inoperable diesel-powered pumps inside Building 41 and two former ASTs east of the structure. One outfall pipe extended 80 feet southeast from Building 41, through the levee to a discharge point in the ODD in the coastal salt marsh (CH2M Hill 2001).

Building 82

Building 82 is a single-story structure located south of former Building 86 and approximately 50 feet from Perimeter Road. Building 82 was used for flight operations (IT 1999), aircraft rescue, and first aid (CH2M Hill 2001). Currently, Building 82 is used by the Marin County Sheriff's Department for storage of training and safety equipment and by the Army for its HAAF BRAC office. This site also includes storm drains associated with Building 82.

Building 87

Building 87, located immediately south of the aircraft parking lot, was used to store products such as paint, oil and grease, antifreeze, and solvents in containers of 5 gallons or less. Numerous 55-gallon drums of solvent and cleaning compounds were stored on horizontal dispensing racks in the area around Building 87. One metal CONEX container, located northwest of Building 87, contained unleaded gasoline in 5-gallon containers. The racks and drums were occasionally moved to various locations surrounding the building (IT 1999a). This site also includes storm drains associated with Building 87.

Building 92/94 Area

Buildings 92 and 94 are single-story structures located north of Building 82 and west of former Building 86. The buildings were used for aircraft maintenance and storage (IT 1999a) and to store supplies for aircraft rescue and offices (CH2M Hill 2001). They are currently used to store records and sampling equipment. This site also includes storm drains associated with the Building 92/94 area.

Building 84/90 Area

The Building 84/90 Area is at the southeastern end of the former Aircraft Maintenance and Storage Facility, northwest of Perimeter Road and south of the taxiways. Building 84 was used for repair of aircraft electronics equipment (IT 1999a). A fenced enclosure just northeast of Building 84 formerly contained a concrete slab and three transformers. The transformers were removed in 1995 (IT 1999a). Three electrical units of unknown use are located on the northern exterior wall beneath an awning.

Building 86

Building 86 was an aircraft maintenance hangar located about 50 feet southeast of the New Hamilton Partners levee. A flammable materials locker and at least one recirculating solvent parts cleaner were located in Building 86. This site also includes storm drains associated with Building 86.

Perimeter Drainage Ditch (PDD)

The PDD is a drainage channel constructed to convey surface water runoff to pump stations for lifting and discharge into the ODD and San Pablo Bay. The PDD also conveys water from portions of the General Services Administration properties, from privately owned agricultural lands adjoining the airfield, and overflow from Ignacio Reservoir. There is an additional open drainage ditch at the base of Reservoir Hill in the General Services Administration Phase I Sale Area that connects to the north end of the PDD by an underground storm drain pipe (IT 1999a).

PDD Spoils Piles

Since the 1930s, the PDD was periodically dredged to remove vegetation and sediment. During the 1990s, dredged material was placed in 14 separate locations, later designated Spoils Piles A through N. The spoils piles were identified based on review of aerial photographs and field reconnaissance (ETC 1994).

East Levee Generator Pad

The East Levee Generator Pad is located midway between the FSTP and the southern end of the runway. One transformer pad and one generator pad were formerly adjacent to each other at a former AST site.

Onshore Fuel Line Sites

From about 1945 until 1975, the onshore fuel line, which extended from the booster pump station to the airfield hangars, was used to transport aviation gasoline and, later, liquid jet fuels from the offshore fuel system to several locations around the airfield.

Northwest Runway Area

The Northwest Runway Area is located at the extreme northern end of the main airfield parcel, along the southeastern slope of the northern perimeter levee, between Ignacio Reservoir Marsh and an alkali marsh. This site was originally identified as an area of potential concern through an aerial photograph review, which showed possible surface disturbances.

Tarmac East of Outparcel A-5

The tarmac east of Outparcel A-5 is a taxiway connecting the former Aircraft Maintenance and Storage Facility with the northwestern portion of the runway. The tarmac is located northwest of former Building 86 and adjoins and includes a portion of the New Hamilton Partners' levee constructed at the boundary between the General Services Administration and BRAC properties.

Revetment Area

The revetment area located east of the runway is transected by asphalt-paved taxiways that connect 28 circular parking areas (revetment turnouts) and extensive undeveloped areas. The revetments were used for aircraft staging and refueling before 1974, except for Revetments 6 and 10, which were used as an engine test pad and firefighter training area, respectively (IT 1999a). This site also includes storm drains associated with the Revetments. Eight additional historic revetments were identified in ASR and are addressed in the ROD/RAP.

Other Army BRAC Environmental Concerns

Testing Range (ASR Site #4)

The ASR identified an area labeled as the "Testing Area" based on an aerial photograph dated August 1946. The area is described as a "rectangle approximately 1,000 feet by 100 feet between the sewage treatment plant and the black powder magazine." The ASR did not explain the basis for labeling the area as a testing area. However, based on a survey of additional maps, the Army BRAC office concluded that the testing range may have been a small-arms target practice area.

Alleged Hazardous, Toxic, and Radiological Waste Disposal Site (ASR Site #8)

In December 2000, a local resident and former military facility inspector stated that during a routine inspection of Hamilton in the mid-1980s, he was told various chemicals were improperly disposed of in an area near the north end of the runway (the alleged HTRW Disposal site). Previous sampling in the area included the collection and analysis of three samples within the area in question.

Skeet Range (ASR Site #18)

A skeet range was identified in the ASR, situated at the corner where South Boundary Road meets East Boundary Road and west of what is now the south runway extension. It is visible on aerial photography dating up to April 26, 1943, but is not observable in photographs beginning in 1946.

Firing-In-Butt (ASR Site #19)

A firing-in-butt was identified in the ASR near the runway and Revetment 25. There were three hardstands and a "butt," which is a target surrounded by barricade material. Aircraft machine guns on both sides of the aircraft were fired into the earthen mound or "butt" to check firing alignment. The butt was entirely removed in 1947; the disposition of the soil is not known. (The ASR incorrectly shows the butt as being closer to the firing line than photos indicate and incorrectly states the date of its removal.) The hardstands with connecting road still exist and are visible in 1960s aerial imagery. The site is considered to be a negligible explosives safety risk and no explosive-related action is necessary.

General Services Administration and BRAC Soil Stockpiles

Approximately 97 soil stockpiles containing 107,000 cubic yards of soil are currently staged in rows on the runway. The soil was generated by the environmental remediation of General Services Administration and BRAC properties adjacent to the main airfield parcel. Soil with concentrations above hazardous waste thresholds (lead, PCB, VOCs, pesticides, or herbicides) were not stockpiled on the runway and were transported off-site for disposal.

Radiological Waste Disposal Cylinders

According to the *BRAC Historical Record Search to Identify any Residual Radioactive Material at Hamilton Army Airfield* by the Medical Physics Center (1994), two concrete-capped galvanized cylinders were buried, in accordance with Atomic Energy Commission policy, at Hamilton near an earthen levee in 1963. With the assistance of the U.S. Air Force, the cylinders, confirmed to contain electron tubes and wave-guides, were located northeast of the runway overrun levee. The cylinders were taken off-site on September 14, 1988, and disposed of at a low-level radiological disposal facility in Barnwell, South Carolina. The California Department of Health Services reviewed documentation of the radiological history of HAAF. The Department of Health Services concluded that the cylinders had been removed from the base and that no contamination had occurred.

Hamilton Wetland Restoration Program Environmental Issues

Residual DDTs throughout the Main Airfield Parcel and PAHs Near the Runway

In 1999, the Army conducted a study to evaluate the potential for the presence of pesticides throughout the unpaved areas of the main airfield parcel and the potential for PAHs to be located adjacent to the runway. This study and the results of the study are documented in the *Remedial Design Investigation Final Data Report* (FW 2000). During the study, the Army collected 23 samples throughout the main airfield parcel and near the runway to evaluate the presence or absence of pesticides and DDTs. The study showed that approximately 270 acres of grassland have residual concentrations of DDTs. The U.S. Army Corps of Engineers is currently carrying out an additional sampling plan for DDTs on the main airfield parcel but the results are not yet available.

Lead-Based Paint

Given the age of existing and previously demolished buildings in the inboard area, lead-based paint is likely to have been used on the buildings.

Action Goals of the ROD/RAP

Environmental action contaminant concentration goals (action goals) protective of wetland receptors are established in the ROD/RAP (see Tables 2-1 and 2-2). The action goals are based primarily on site-specific ambient concentrations in combination with RWQCB-developed numbers for San Francisco Bay ambient sediments and National Oceanic and Atmospheric Administration effects-range low sediment concentrations. A more detailed discussion of action goals is provided in Section 3.6, "Hazardous Substances and Waste" and in the ROD/RAP.

Remedial Action Objectives of the ROD/RAP

The ROD/RAP contains RAOs that describe the goals of the proposed remedial actions. RAOs are developed to evaluate the ability of the remedial alternatives to protect human health and the environment. RAOs are quantitative and qualitative expressions of goals for protecting human health and the environment that are expressed in terms of contaminants and media of interest, possible receptors, and associated exposure pathways (CH2M Hill 2001). RAOs can differ with each specific site, depending on site conditions, exposure scenarios, and receptors. Specific RAOs were used to guide the development of alternatives for each site.

The RAOs in the ROD/RAP for the Army BRAC sites and the "other Army BRAC environmental concerns," are to prevent or mitigate the exposure of

ecological and human receptors to soil and/or sediment containing concentrations of site-specific contaminants that are greater than their respective action goals by

- reducing the concentrations of residual contaminants, or
- controlling or eliminating the exposure of receptors to residual contaminants.

The RAOs for the HWRP issues are to prevent or mitigate the exposure of ecological and human receptors to soil containing concentrations of contaminants that are greater than their respective action goals for these issues.

A more detailed discussion of remedial action objectives is provided in Section 3.6, "Hazardous Substances and Waste" and in the ROD/RAP.

Remedial Strategies in the ROD/RAP

Remedial Strategies Evaluated in the ROD/RAP for Army BRAC Sites and HWRP Environmental Issues

Remedial strategies were developed by assembling remedial technologies compatible with a wetland end-use scenario into treatment options that met the RAOs. The ROD/RAP evaluated four primary remedial strategies to address contamination issues on the site. Different combinations of the four strategies were considered for the Army BRAC sites and for the HWRP sites. The remedial strategies evaluated for each category of site are shown below, followed by a detailed discussion of the four strategies and a description of the decision criteria for selecting final remedial strategies for each site.

For the Army BRAC sites, the ROD/RAP evaluated three remedial strategies:

- No Further Action,
- Excavation and Offsite Disposal, and
- Manage in-Situ, with Monitoring and Maintenance, for Army BRAC Sites.

For the HWRP issues, the ROD/RAP evaluated two remedial strategies:

- No Further Action, and
- Manage on Site, with Monitoring and Maintenance, for Army Civil Works Issues.

The ROD/RAP also addresses lead-based paint (LBP) in soils at current and former building locations. Rather than evaluating different remedial strategies for LBP, the ROD/RAP proposes that soils containing LBP be managed on-site as part of the HWRP.

These strategies are discussed further below.

No Further Action

Under this strategy, the ROD/RAP identifies that no further environmental action would be necessary or taken, and there would be no restrictions placed on the use of the site.

Excavation and Off-Site Disposal

Under this strategy, contaminated soils above action goals would be excavated and disposed of at an appropriate off-site landfill facility. Excavated sites that are shown to meet the action goals shall be considered fully remediated and there would be no institutional controls placed on the use of the site. For coastal salt marsh sites, excavation would continue until the action goals have been achieved, or until it is determined by joint agreement of the State and Army that further excavation is impractical or it is determined that the remaining contamination does not pose an unacceptable risk to human health and the environment.

Manage In-Situ, with Monitoring and Maintenance, for Army BRAC Sites

Under this strategy, soils with residual concentrations of contaminants above the established action goals would remain in place and a performance criterion of 3 feet of stable cover, or equivalent, would be established. This performance criterion is established to eliminate or significantly reduce any potential risk associated with residual concentrations of contaminants by preventing exposure of future wetland receptors to contaminated site soils. The stable cover criterion shall be maintained throughout the life of the wetland. The in-situ strategy was considered for sites being addressed by the Army BRAC program and was not considered for DDT or PAH issues addressed by the HWRP program.

The HWRP design and geomorphic and scour analyses would be used to determine whether performance criterion can be achieved. If affected soils remain in areas of the wetland restoration project that are subject to tidal scour so that the performance criteria cannot be achieved, then such affected soils shall be excavated and disposed of offsite. For sites where the in-situ management strategy is selected, the Army shall ensure that the HWRP, including implementation of its plan for monitoring and adaptive management, would achieve and maintain the 3 feet of stable cover. The duration of the HWRP obligation shall extend to a date 13 years following the date of levee breach and reintroduction of tidal influence to the Inboard Area. This duration is the limit of the authorized implementation period of the HWRP, in accordance with federal law. Throughout the period of implementation of the HWRP and after, the Army and the property owner shall ensure that the remedy for these sites is maintained to the extent necessary to protect human health and the environment.

Institutional controls in the form of land use restrictions, would also be required where contamination remains at levels above the action goals. Institutional controls are described further below.

Manage On-Site, with Monitoring and Maintenance, for Army Civil Works Issues

Under this strategy, a performance criterion of 3 feet of stable cover, or equivalent, as agreed to by the Army and the State, would be established. Soils with residual concentrations of contaminants above the established action goals and located where the performance criteria cannot be met would be excavated and, with the concurrence of the State, some or all of the impacted soils would be managed on-site. Similar to the in-situ criteria described previously, the primary purpose of the performance criteria is to eliminate or significantly reduce any potential risks associated with residual concentrations of DDTs throughout the inboard area and PAHs adjacent to the runway by preventing exposure of future wetland receptors to site soils contaminated with these compounds.

The Army Civil Works Program shall ensure, through both construction and implementation of its plan for monitoring and adaptive management, that the HWRP would achieve and maintain the performance criteria of 3 feet of stable cover, or its equivalent. The duration of this HWRP obligation shall extend to a date 13 years following the date of levee breach and reintroduction of tidal influence to the Inboard Area. This duration is the limit of the authorized implementation period of the HWRP, in accordance with federal law. Thereafter, the property owner shall ensure that the performance criteria for the Inboard Area-Wide DDTs and PAHs in soils adjacent to the runway are maintained to the extent necessary to protect human health and the environment. The Army and the State have determined that the HWRP is likely to be an appropriate and effective mechanism for implementing this alternative. Institutional controls in the form of land use restrictions, would also be required where concentrations of Inboard Area-Wide DDTs and/or PAHs remain at levels above the action goals. Institutional controls are described further below.

Institutional Controls

Because contaminants exceeding action goals would remain on the site under both the in-situ and on-site management strategies, institutional controls in the form of land use restrictions would be required to ensure that future exposure of contaminants to human or environmental receptors does not occur. The institutional controls include those listed below.

- Grading, excavation, and intrusive activities must be conducted pursuant to a State-approved plan.
- The property shall not be used for residences, schools, daycare facilities, hospitals, hospices, or other similar sensitive uses.

State and federal agencies must have access to the property. The property owner shall provide access, on an as-needed basis, minimizing any interference with the implementation, operation, or maintenance of the ecosystem restoration project. Appropriate federal and state agencies and their officers, agents, employees, contractors, and subcontractors would have the right, upon reasonable notice, to enter the property where it is necessary to carry out response actions or other activities consistent with the purposes of the ROD/RAP. Appropriate federal and state agencies and their officers, agents, employees, contractors, and

subcontractors would also have the right, upon reasonable notice, to enter adjoining property where it is necessary to carry out response actions or other activities consistent with the purposes of the ROD/RAP.

Selection of Remedial Strategies for Sites

The appropriateness of each remedial strategy at each specific contamination site was evaluated in the ROD/RAP based on the nine criteria set forth in the National Oil and Hazardous Substances Pollution Contingency Plan. These evaluation criteria served as the basis for conducting the detailed analysis during the FFS and for subsequently selecting a remedial action appropriate for the future wetland-use scenario. Final remedial actions for each site in the ROD/RAP were developed through this screening process. The criteria include

1. overall protection of human health and the environment;
2. compliance with ARARs;
3. long-term effectiveness and permanence;
4. reduction of toxicity, mobility, and volume, through treatment;
5. short-term effectiveness;
6. ability to implement;
7. cost;
8. regulatory acceptance; and
9. community acceptance.

Strategies that did not meet the first two criteria, overall protection of human health and the environment and compliance with Applicable or Relevant and Appropriate Requirements (ARARs), were eliminated from further evaluation. Specific aspects of the HWRP, such as the type of habitat planned for specific sites, or the potential for tidal action to erode down through fill and into contact with sites (scour), were considered in identifying, evaluating, and selecting remedial alternatives. The remedial action strategies proposed for each site are presented in Tables 2-1 and 2-2.

Remedial Strategies Assumed for Other Army BRAC Environmental Concerns for Purposes of Analysis in this SEIR

The ROD/RAP addresses "other BRAC environmental considerations," which includes the four ASR sites and the GSA/BRAC soil stockpiles. The ASR sites will follow a process of site investigation followed by a comparison of contamination levels, if any, to action goals presented in the ROD/RAP. If remediation is warranted based on this comparison, the RWQCB SCRs will

identify the procedure for completion. The RWQCB will determine what additional actions, if any, may be required with respect to the management and reuse of the GSA/BRAC stockpiled soil. The Army will be responsible for conducting any additional actions required by the RWQCB as part of the SCRs.

To assess the potential impacts associated with remediation of these sites, remedial strategies are assumed in this SEIR that would be reasonable, based on what is known of these sites and what is described in the ROD/RAP, but also that would capture the full range of potential impact. The remedial strategies assumed here are only for purposes of analysis and in no way commit the Army or other responsible parties to a particular course of action.

For purposes of analysis in the SEIR it is assumed that excavation and off-site disposal would be implemented at all four ASR sites. If investigations determine that contamination at any of these sites warrants no further action or in-situ management, many of the impacts associated with remediation of these sites would be lower than those characterized in the SEIR (i.e., truck traffic, noise, dust).

As described in the ROD/RAP, the GSA/BRAC soil stockpiles contain petroleum related contaminants and based on existing available data do not contain CERCLA contaminant concentrations above hazardous waste thresholds. Additional characterization of the soils for contaminants may be required before final determination of a cleanup strategy. The RWQCB will ultimately determine what actions, if any, are required to address the stockpiles. For purposes of analysis in the SEIR, it is assumed that the majority of these soils do not contain contaminant levels above the ROD/RAP action goals and will therefore be managed on-site; however, it is assumed that approximately 10 percent, of the soil stockpiles contains contaminants above action goals and would require excavation and offsite disposal.

Discussion of quantities of soil for excavation and offsite disposal is provided below under the description of excavation and grading.

Construction Activities Associated with the Proposed ROD/RAP

Schedule of Remedial Activities

The remedial design for the inboard and coastal salt marsh sites will likely begin in 2003, with actual site cleanup activities anticipated to begin in 2004. The ultimate date for completion of cleanup activities will be determined following the conclusion of current site investigations and determinations as to the appropriate remedial strategies. Placement of cover will be accomplished through the HWRP and is anticipated to begin in 2004. Some cleanup activities, such as site-wide DDTs and PAHs near the runway, are issues and may be addressed concurrently with implementation of the overall HWRP. Levee breach

is planned to occur no later than eight years after implementation of the HWRP, provided all requirements of the ROD/RAP have been met.

Excavation and off-site disposal for sites within the main airfield parcel, including portions of the PDD and the Buildings 35/39 area, are assumed to require approximately 2 weeks to complete. The total period for excavation and disposal of the current BRAC sites, assuming no overlap between cleanup activities on the main airfield parcel and the coastal salt marsh sites, would be approximately 6 months.

ASR sites, which are assumed in the SEIR to require excavation and offsite disposal, are estimated to require approximately 2 weeks to complete. The GSA/BRAC soil stockpiles would be addressed in two phases. The first phase would be characterization of issues and off-site removal of any soils with contaminants exceeding action goals. This phase is assumed to require 2 months for completion. It is assumed that the remaining stockpiled soil would be used or distributed on-site as part of the HWRP and is not included in the schedule for site remediation.

As stated previously, it is also assumed in the SEIR that the majority of the on-site management of DDT/PAH soils would be conducted concurrent with implementation of the HWRP and other soil movement associated with the HWRP. For this reason, although on-site management of these soils is part of the ROD/RAP, the schedule for completion of these activities would be determined through implementation of the HWRP.

Remedial activities would normally be conducted between 7:00 a.m. and 5:00 p.m., Monday through Friday. Remedial activities are not anticipated to occur on weekends or holidays. At certain sites where remedial actions are constrained by external factors, such as the seasonal constraint on activities in the coastal salt marsh due to interference with endangered species nesting, remedial actions may extend beyond the normal time frames and may also have to be conducted on weekends.

Site Preparation

Construction equipment would be moved to the site and staging areas would be established on the airfield property for equipment storage, decontamination, and soil transfer from off-road trucks to highway transport trucks. Additional measures such as installation of fencing or other support facilities would be conducted at this time. Preconstruction surveys in the coastal salt marsh area for sensitive species are considered to be part of the ROD/RAP.

Excavation and Grading

Contaminated material would be excavated or moved on-site using standard construction equipment (graders, front-end loaders, dump trucks, etc.). The Estimated soil quantities that would be excavated and disposed of off-site, or managed onsite, are provided in Table 2-3. The ROD/RAP estimates that 43,965 cubic yards of soil would be excavated and disposed of off site; 13,800 cubic yards of soil from the inboard area and 30,165 cubic yards of soil from coastal salt marsh area. The ROD/RAP provides for the possible excavation and disposal of additional soils based on the results of additional investigations and based on the geomorphic modeling and final HWRP design. Consequently, additional soil, beyond the ROD/RAP estimate, may be require excavation and off site disposal. For purposes of analysis in the SEIR, the following assumptions have been made with regard to additional soil removal from the site.

Table 2-3. Estimated Quantities of Soils for Excavation and Off-Site Disposal or On-Site Management

Site/Issue	Quantity of Soil (cubic yards)	
	Excavation and Off-site Disposal	On-site Management
Main Airfield Parcel Sites	13,800	n/a
Coastal Salt Marsh Sites	30,165	n/a
Other Sites[2]	16,000	n/a
DDT/PAH Soils	10,000[3]	861,000
GSA/BRAC Soil Stockpiles	10,000[3]	97,000
Total	*79,765*	*958,000*

[1] n/a - not applicable

[2] Estimated for purposes of analysis in the SEIR. Includes potential additional soils from the ASR sites that may require excavation and offsite disposal (assumed ~11,000 CY), and allowance for additional soils from sites proposed for in-situ management that may require excavation and offsite disposal, based on geomorphic modeling and final HWRP design (~5,000 based on 10% of site excavation total).

[3] Estimated for purposes of analysis in the SEIR to account for soils currently thought to be appropriate for on-site management but, as a result of further investigations, may require excavation and offsite disposal.

- BRAC Sites – As stated in the ROD/RAP, some BRAC sites proposed to be managed in-situ may require excavation and off site disposal if it is determined that the performance criterion of 3 feet of stable cover cannot be achieved. It is not possible to predict which sites, if any, would be changed from in-situ management to excavation and disposal, but to account for any such changes, it is assumed that an additional 4,400 cubic yards would be excavated and disposed of offsite (based on assumed 10 percent of the total quantity of soil estimated in the ROD/RAP for excavation and disposal).

- ASR Sites – For purposes of analysis in the SEIR, it is assumed that all four ASR sites would be excavated and disposed of offsite. To account for removal of soil from these sites, it is assumed that an additional 11,400 cubic yards of soil would be excavated and disposed of offsite (based on average site excavation average for ROD/RAP sites of 2,850 CY and presuming all four sites require some excavation).

- GSA/BRAC Soil Stockpiles – For purposes of analysis in the SEIR, it is assumed that some portion of the soil stockpiles contains soils with contaminant levels above action goals. It is assumed that 10,000 cubic yards of soil from the GSA/BRAC soil stockpiles would be disposed of offsite (approximately 10 percent total quantity of soil estimated in the ROD/RAP for excavation and disposal).

- Residual DDTs – As stated previously, the U.S. Army Corps of Engineers conducted additional DDT sampling on HAAF in 2003. Although the results of this sampling have not been published, it is assumed for purposes of the SEIR analysis that additional areas of soil containing DDTs above the ROD/RAP action goal (1 ppm) will be found. In accordance with the ROD/RAP, these soils would require excavation and offsite disposal. It is therefore assumed that approximately 10,000 cubic yards of additional soil would require excavation and offsite disposal due to DDT contamination (approximately 1 percent of the total quantity of soil estimated in the ROD/RAP for on-site management due to DDTs).

The ultimate quantity of soil excavated and disposed of off-site would depend on the extent of the contamination since, in accordance with the ROD/RAP, excavation would continue until action goals are achieved. Confirmation samples would be collected at sites to determine if action goals have been met. Confirmation samples would either be collected before excavation to determine the extent of the excavation required, or after excavation to confirm complete removal of contaminants to action goals. Confirmation sampling would be conducted, as necessary, on a site-by-site basis.

Where possible, excavation activities in the coastal salt marsh area would be conducted within the area to be excavated to avoid temporary construction of access roads. Where access to sites requires crossing the coastal salt marsh area, equipment that exhibits low impact to habitat and high efficiency would be used.

Excavations in the main airfield parcel would be backfilled only as necessary to eliminate unsafe conditions using clean on-site soil or rehandled dredged material. All excavations in the coastal salt marsh would be backfilled with clean on-site soil or rehandled dredge material of similar physical characteristics except those within the proposed channel cut by the HWRP. Excavations in the high marsh would also be contoured to eliminate topographic depressions and promote the reestablishment of native vegetation. The site is expected to revegetate naturally, and seeding or planting is not anticipated.

Storage and Transport of Soils

Excavated materials would need to be classified and stored on-site at the established staging areas. Waste profiling would be required to determine the classification of the waste. Soil blending may be required to reduce the moisture content of the excavated materials in order to reach moisture content acceptable

for transportation and disposal. Soil would be classified for disposal before blending.

Excavated soil would be disposed of in an approved landfill, based on waste classification. Any contaminated soil transported off-site would be disposed of in an approved landfill or treated at a recycling facility. Based on previous remedial activities at HAAF, materials could be transported to local disposal sites (e.g., Redwood Sanitary Landfill in Novato for nonhazardous wastes) or distant disposal sites (e.g., Altamont Landfill in Alameda County for certain designated wastes or Kettleman Hills Landfill in Kings County for hazardous wastes).

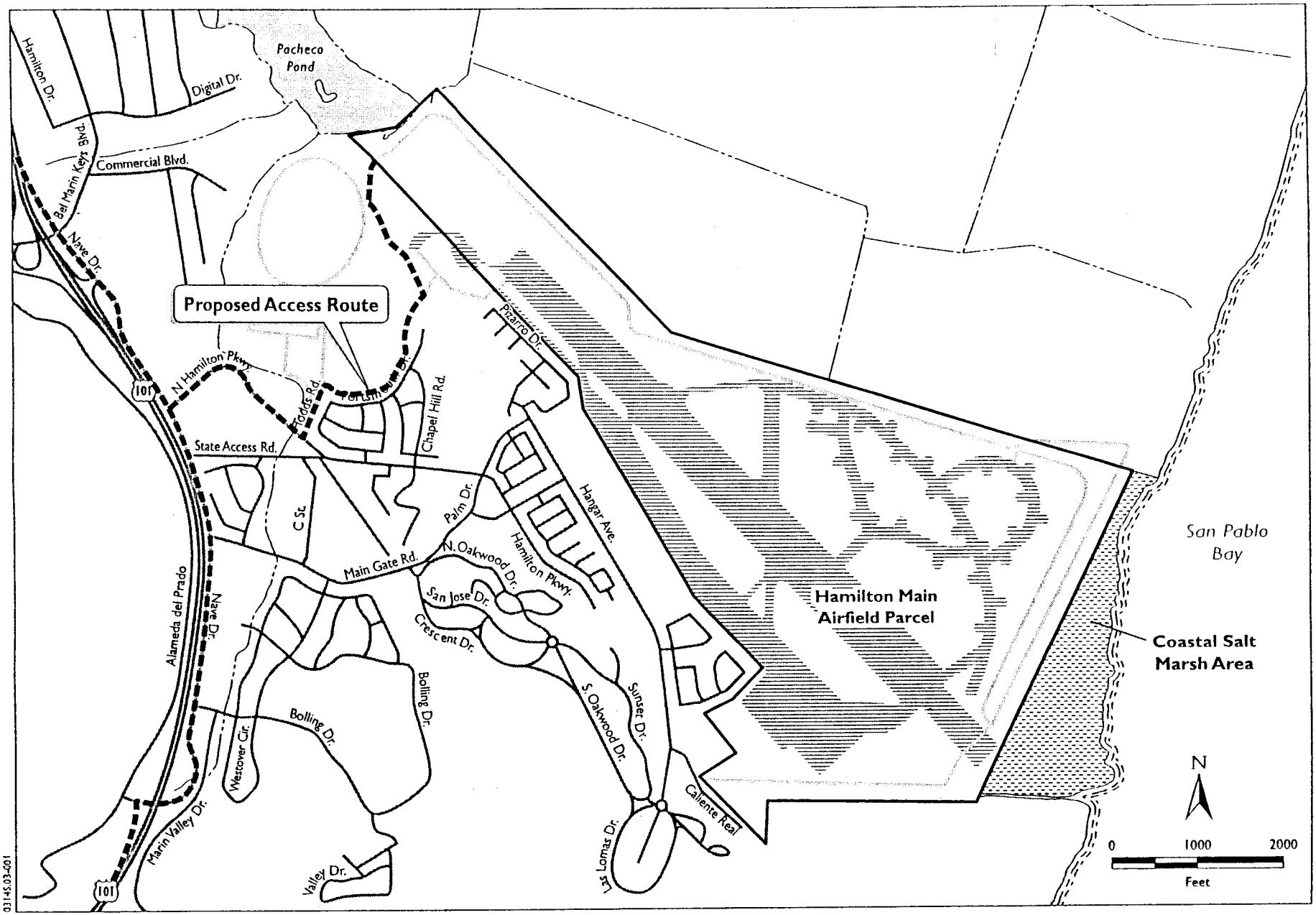
All vehicles transporting materials to and from the project site would follow a designated access route (Figure 2-6). From the project site, vehicles would follow a paved access road from the northwestern end of the airfield around the eastern perimeter of Landfill 26, to Todd's Road. At Todd's Road vehicles would turn south and proceed to North Hamilton Parkway, then turn west along North Hamilton Parkway to Nave Drive. Depending on the ultimate destination of the vehicles, vehicles would either turn right on Nave Drive to access Highway 101 north at the Bel Marin Keys entrance, or turn left on Nave Drive to access Highway 101 south at Alameda del Prado entrance. Access to remediation sites on the site would be primarily via the runway, taxiways, and other existing internal access roads, although some new access roads or overland travel would be required to reach coastal salt marsh sites.

Postconstruction Monitoring

Postconstruction observations would include physical observations to check for reestablishment of the vegetation and monitoring to address contaminants, where appropriate.

Intended Uses of this EIR

As indicated in the introduction, the subsequent EIR is an informational document for decision-makers and the public. CEQA requires that decision-makers review and consider the EIR in their evaluation of this project. The Conservancy, as the lead agency for the previous HWRP EIR/EIS and potential property recipient, is the lead agency responsible for certifying the subsequent EIR. DTSC and RWQCB are responsible agencies for the subsequent EIR and would rely on it to support its decision to approve or disapprove the RAP. DFG and BCDC are also responsible agencies with permitting authority over the proposed project. Agencies with permit review or approval authority over the project are summarized in Table 2-4.



Jones & Stokes

Figure 2-6
Proposed Access Route to the Project Site

Table 2-4. Summary of Local, State, and Federal Permit and Review Requirements

Agency	Permit/Review Required
California Coastal Conservancy	CEQA Lead Agency/Local sponsor of HWRP
Department of Toxic Substances Control	CEQA Responsible Agency Approval of the ROD/RAP
Regional Water Quality Control Board	SCRs pursuant to the Porter Cologne Water Quality Control Act CEQA Responsible Agency Approval of the ROD/RAP
U.S. Army Corps of Engineers	Federal Sponsor of HWRP Internal Review of compliance with Section 404 of the Clean Water Act and Section 10 of Rivers and Harbors Act
U.S. Fish and Wildlife Service	Section 7 Consultation for effects to listed federal species
NOAA Fisheries	Section 7 Consultation for effects to listed federal species
Bay Conservation and Development Commission	Potential Coastal Consistency Determination
California Department of Fish and Game	Potential Section 2081 consultation for effects to listed state species